

Application No.: 09/679,394
Inventor: JEAN WOLOSZKO et al

Atty Docket: S-9-2

AMENDMENTS

The status of all claims in the Application and the text of all active claims are as follows.

CLAIMS:

1. - 3. (CANCELED)

4. (PRESENTLY AMENDED) A medical apparatus comprising a shaft including a shaft distal end portion and a shaft proximal end portion, the shaft distal end portion including at least one active electrode disposed thereon and having a shape comprising at least one curve proximal to the at least one active electrode, wherein the at least one curve comprises a first curve and a second curve proximal to the first curve, and the shaft distal end portion is adapted to be resilient such that upon the application of an external force the shape distorts, whereupon removal of the force the shape restores; [The apparatus of claim 2] further including an introducer needle having a needle lumen, the needle lumen adapted for passing the shaft distal end portion therethrough, wherein the shaft distal end portion includes a distal linear portion, the active electrode includes an electrode head located terminally at a distal tip of the shaft, the first curve is characterized by a first angle and the second curve is characterized by a second angle, wherein a transverse location of the electrode head within the needle lumen is determined by the first angle and by a length of the distal linear portion.

5. (PREVIOUSLY PRESENTED) The apparatus of claim 4, wherein the introducer needle includes a needle distal end, and the shaft distal end portion avoids contact with the introducer needle when the shaft distal end portion is advanced from and retracted into the needle distal end.

6. (CURRENTLY AMENDED) The apparatus of claim [4] 4, wherein the apparatus is adapted for ablating tissue during an electrosurgical procedure, the at least one curve defines a specific curvature of the shaft, the specific curvature is provided during manufacture of the apparatus, and the specific curvature is at least substantially maintained during ablation of the tissue.

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7. (CURRENTLY AMENDED) The apparatus of claim [1] 4, wherein the at least one active electrode includes an electrode head having a spike.

8. (PREVIOUSLY PRESENTED) The apparatus of claim 7, wherein the electrode head includes an apical spike and a substantially equatorial cusp.

9. (CURRENTLY AMENDED) The apparatus of claim [1] 4, wherein the at least one active electrode includes a filament and an electrode head, and the apparatus further comprises a first insulating sleeve encasing the filament, and an insulating collar disposed on a distal end of the first insulating sleeve and adjacent to the electrode head.

10. (PREVIOUSLY PRESENTED) The apparatus of claim 9, further comprising a cylindrical return electrode on the first insulating sleeve, the return electrode located proximal to the insulating collar.

11. (PREVIOUSLY PRESENTED) The apparatus of claim 10, further comprising a second insulating sleeve encasing a proximal portion of the return electrode.

12. (PREVIOUSLY PRESENTED) The apparatus of claim 11, further comprising a shaft shield encasing at least a proximal portion of the second insulating sleeve, wherein the apparatus is adapted for connection to a power supply unit via a connector cable, the connector cable includes an electrically conductive cable shield, and the shaft shield is coupled to the cable shield.

13. (PREVIOUSLY PRESENTED) The apparatus of claim 9, wherein the insulating collar comprises a material selected from the group consisting of: a glass, a ceramic, and a silicone.

14. (CURRENTLY AMENDED) The apparatus of claim [1] 4, further comprising at least one depth marking located at the shaft proximal end portion.

15. (PREVIOUSLY PRESENTED) The apparatus of claim 14, wherein the at least one depth marking comprises a radiopaque material.

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16. (CURRENTLY AMENDED) The apparatus of claim [4] 4, further comprising a tracking device located at the shaft distal end portion.

17. - 40. (WITHDRAWN)

41. (PREVIOUSLY PRESENTED) An electrosurgical probe and introducer needle combination for treating an intervertebral disc, comprising: a probe including a shaft, the shaft including a shaft distal end, at least one active electrode, and at least one return electrode, wherein the shaft distal end includes a first curve and a second curve proximal to the first curve; and an introducer needle having a lumen and a needle distal end, the introducer needle adapted for passing the shaft distal end through the lumen, and for guiding the shaft distal end distally beyond the needle distal end.

42. (PREVIOUSLY PRESENTED) The combination of claim 41, wherein the shaft further includes a shaft proximal end portion, the proximal end portion being essentially linear, and the first curve and the second curve are in the same plane relative to a longitudinal axis of the proximal end portion of the shaft.

43. (PREVIOUSLY PRESENTED) The combination of claim 42, wherein the first curve and the second curve are in opposite directions relative to the longitudinal axis of the proximal end portion of the shaft.

44. (PREVIOUSLY PRESENTED) The combination of claim 41, wherein the first curve and the second curve are separated by a substantially linear inter-curve portion.

45. (PREVIOUSLY PRESENTED) The combination of claim 41, wherein the diameter of the lumen is from about 105% to about 500% of the diameter of the shaft distal end.

46. (PREVIOUSLY PRESENTED) The combination of claim 41, wherein the shaft distal end remains substantially centrally located within the lumen when the shaft distal end is passed within the lumen.

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47. (PREVIOUSLY PRESENTED) The combination of claim 41, wherein the shaft distal end is located substantially centrally within the lumen when the shaft distal end is retracted into the needle distal end.

48. (PREVIOUSLY PRESENTED) The combination of claim 41, wherein the shaft has a length in the range of from about 10 cm to about 25 cm, and a diameter in the range of from about 0.5 mm to about 2.5 mm, and the introducer needle has a length in the range of from about 10 cm to about 20 cm, and the lumen has a diameter in the range of from about 1.0 mm to about 3.0 mm.

49. (PREVIOUSLY PRESENTED) The combination of claim 41, wherein the at least one active electrode is disposed at a distal tip of the shaft, the shaft distal end includes a distal linear portion, and a transverse location of the at least one active electrode within the lumen is determined by a length of the distal linear portion.

50. (PREVIOUSLY PRESENTED) The combination of claim 41, wherein the at least one active electrode is disposed at a distal tip of the shaft, the first curve is characterized by a first angle, and the first angle determines a transverse location of the at least one active electrode within the lumen.

51. (PREVIOUSLY PRESENTED) The combination of claim 42, wherein the second curve causes a deflection of the shaft distal end away from the longitudinal axis of the proximal end portion of the shaft when the second curve is advanced distally beyond the needle distal end.

52. (PREVIOUSLY PRESENTED) The combination of claim 51, wherein the second curve is characterized by a second angle, the first curve and the second curve are separated by a substantially linear inter-curve portion, and the magnitude of the deflection is determined by the second angle and a length of the inter-curve portion.

53. (PREVIOUSLY PRESENTED) The combination of claim 41, wherein the shaft includes a mechanical stop, and the mechanical stop limits distal movement of the shaft within the lumen of the introducer needle.

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54. – 58. (WITHDRAWN)

59. (CANCELED)

60. (PREVIOUSLY PRESENTED) A medical apparatus, comprising: a shaft including a shaft distal tip, a shaft distal end portion, and a shaft proximal end portion, the shaft distal end portion having a first curve and a second curve proximal to the first curve, wherein the first curve and the second curve are in the same plane relative to a longitudinal axis of the proximal end portion of the shaft, and the first curve and the second curve are in opposite directions, and an introducer device having a lumen and an introducer distal end, the introducer device adapted for passing the shaft distal end portion through the lumen, wherein the shaft distal tip occupies a substantially central transverse location within the lumen when the shaft distal end portion is passed within the lumen.

61. (PREVIOUSLY PRESENTED) The medical apparatus of claim 60, wherein the shaft distal tip occupies a substantially central transverse location within the lumen when the shaft distal end portion is advanced from and retracted into the introducer distal end.

62. (PREVIOUSLY PRESENTED) The medical apparatus of claim 60, wherein the shaft distal end portion avoids contact with the introducer device when the shaft distal end portion is advanced from and retracted into the introducer distal end.

63. (PREVIOUSLY PRESENTED) The medical apparatus of claim 60, wherein the shaft includes a distal linear portion, and a transverse location of the shaft distal tip within the lumen is determined by an angle of the first curve and by a length of the distal linear portion.

64. (PREVIOUSLY PRESENTED) The medical apparatus of claim 60, wherein the second curve causes a deflection of the shaft distal tip away from a longitudinal axis of the shaft when the second curve is advanced distally beyond the introducer distal end.

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65. (PREVIOUSLY PRESENTED) The medical apparatus of claim 60, further comprising an electrosurgical probe, wherein the electrosurgical probe includes the shaft.

66. (PREVIOUSLY PRESENTED) The medical apparatus of claim 60, comprising a medical instrument selected from the group consisting of: a catheter, a cannula, an endoscope, and a hypodermic needle.

67. (CURRENTLY AMENDED) The apparatus of claim [4] 60, ~~wherein~~ further comprising a tracking device located at the shaft distal end portion, and wherein said tracking device comprises a material selected from the group consisting of tungsten, stainless steel alloys, platinum, platinum alloys, titanium, titanium alloys, molybdenum, molybdenum alloys, nickel, and nickel alloys.

68. (CANCELED)

69. (CURRENTLY AMENDED) A medical apparatus, comprising: a shaft including a shaft distal tip, a shaft distal end portion, and a shaft proximal end portion, the shaft distal end portion having a first curve and a second curve proximal to the first curve, wherein the first curve and the second curve are in the same plane relative to a longitudinal axis of the proximal end portion of the shaft, and the first curve and the second curve are in opposite directions, and where the shaft distal end portion is adapted to be resilient such that upon the application of an external force the at least one curve distorts, whereupon removal of the force the at least one curve restores ~~[The medical apparatus of claim 68]~~, further comprising an introducer device having a lumen and an introducer distal end, the introducer device adapted for passing the shaft distal end portion through the lumen, wherein the shaft distal tip occupies a substantially central transverse location within the lumen when the shaft distal end portion is passed within the lumen.

70. (PREVIOUSLY PRESENTED) The medical apparatus of claim 69, wherein the shaft distal tip occupies a substantially central transverse location within the

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lumen when the shaft distal end portion is advanced from and retracted into the introducer distal end.

71. (PREVIOUSLY PRESENTED) The medical apparatus of claim 69, wherein the shaft distal end portion avoids contact with the introducer device when the shaft distal end portion is advanced from and retracted into the introducer distal end.

72. (PREVIOUSLY PRESENTED) The medical apparatus of claim 69, wherein the shaft includes a distal linear portion, and a transverse location of the shaft distal tip within the lumen is determined by an angle of the first curve and by a length of the distal linear portion.

73. (PREVIOUSLY PRESENTED) The medical apparatus of claim 69, wherein the second curve causes a deflection of the shaft distal tip away from a longitudinal axis of the shaft when the second curve is advanced distally beyond the introducer distal end.

74. (PREVIOUSLY PRESENTED) The medical apparatus of claim 69, further comprising an electrosurgical probe, wherein the electrosurgical probe includes the shaft.

75. (PREVIOUSLY PRESENTED) The medical apparatus of claim 69, comprising a medical instrument selected from the group consisting of: a catheter, a cannula, an endoscope, and a hypodermic needle.

76. – 77. (CANCELED)

78. (CURRENTLY AMENDED) The apparatus of claim ~~[77]~~ 69, wherein ~~[the shaft further includes a proximal end portion,]~~ the proximal end portion ~~is~~ is ~~[being]~~ essentially linear, and the first curve and the second curve are in the same plane relative to the longitudinal axis of the proximal end portion of the shaft, and the first curve and the second curve are in opposite directions relative to the longitudinal axis of the proximal end portion of the shaft.

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79. (CURRENTLY AMENDED) The apparatus of claim [76] 69, [wherein]
further comprising a tracking device located at the shaft distal end portion and
comprising [~~comprises~~] a material selected from the group consisting of titanium alloys
and nickel alloys.